

REMARKS

The Examiner is thanked for the performance of a thorough search. By this amendment, Claims 1-3, 5-10, 14-21, 25-28, 39, 40 have been amended. It is respectfully submitted that the amendments to the claims as indicated herein do not add any new matter to this application.

DRAWINGS

Enclosed are corrected drawings for FIG. 6, FIG. 7 and FIG. 17. The drawings were corrected according to suggestions of the Draftperson's Review.

Each issue raised in the Office Action mailed March 11, 2003 is addressed hereinafter. It is respectfully submitted that the rejection of the Claims as amended are over come for reasons given hereafter.

SUMMARY OF REJECTIONS/OBJECTIONS

In the Office Action, Claims 1-10, 12, 14-21, 23, 25-28, and 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Furusawa* (U.S. Patent 6,338,081) in view of "Information Brokering in an Agent Architecture" by Martin.

REJECTIONS UNDER 35 U.S.C. § 103(a)

CLAIMS 1, 2-10, 12 and 42

Independent Claim 1, as amended, is reproduced below:

"1. A computer-implemented method for communication and cooperative task completion between a community of distributed electronic agents communicating using a dynamically expandable interagent communication language ("ICL") and at least one other distributed component system, the other distributed component system communicating using a **protocol incompatible with the ICL**, the method comprising the acts of:

- a) receiving by a bridge agent a description of functional capabilities of components of the other distributed component system from a **component registry of the other distributed component system**;
- b) **translating** the functional capabilities of components received in step (a) **from the protocol of the other distributed component system into the ICL**, to create a translated description;
- c) adding to a facilitator registry of the community of distributed agents the translated description, wherein the facilitator registry is distinct from the component registry;
- d) responsive to a request for service to the community of distributed agents, delegating an ICL sub-goal request to the bridge agent;
- e) translating at the bridge agent the delegated ICL sub-goal request into the incompatible protocol of the other distributed system, to create a translated request; and
- f) invoking one or more components of the other distributed component system using the translated request .

Applicants' amended Claim 1 requires a component registry that is distinct from a facilitator registry. Claim 1 is amended to clarify the distinction between **component registry** and the **facilitator registry**. The component registry contains the description of the functional capabilities of the "**other distributed component system**." Thus, this component registry is associated with the "other distributed component system" and is maintained by the "other distributed component system". Such a component registry is distinct from the facilitator registry.

For purposes of explanation, assume that we have a community of distributed electronic agents ("Community F"). Assume that facilitator agent belongs to Community F. Community F maintains its own registry called the Facilitator registry. Assume that there is one "other distributed component system" (called "Community G"). Assume that Community G uses a protocol that is incompatible with the protocol of Community F. **Community G maintains its own registry called the component registry**. The difference in protocols requires translation **as in limitation b and f of claim 1 above**. **Thus, Facilitator registry is separate and different from the component registry.**

In order to underscore the differences between Furusawa and Applicants' claimed invention, the Examiner's mapping scheme, as indicated by the Office Action, is

used. The mapping used by the Examiner is summarized in the following table:

Application 09/271,617	Furusawa
OAA Facilitator	Facilitator Agent
Bridge Agent	Broker Agent
Agents of the "Other Distributed Component System" (i.e. agents of Community G)	Service Provider Agents
Facilitator registry (registry of Community F)	Facilitator Advertise Table
Component registry (registry of Community G)	Broker Advertise Table

In Furusawa, there is really **only one registry**, namely, the Facilitator Advertise Table. All the agents in Furusawa, including the service provider agents register with the Facilitator agent and their capabilities are registered on the Facilitator Advertise Table. See Furusawa, column 13, lines 8-11, where "[o]ther agents existing in the agent community 150 can identify a service provider agent which has a desired capability with reference to the facilitator advertise table 151 to send a request to process." Thus, in Furusawa, there is only one community of agents and all such agents register with the Facilitator agent. Thus, there is only one registry.

In Furusawa, the broker advertise table is merely a subset of the Facilitator Advertise Table. In column 13, lines 25-26, it is stated that the broker advertise table is created by extracting the minimum information required to access the corresponding service provider. In other words, the minimum information needed is extracted from the Facilitator Advertise Table. In contrast, Applicants' component registry is completely different and separate from the facilitator registry.

Further, Claim 1 has the feature of **translating from a protocol that is incompatible with the ICL into ICL**. The incompatible protocol is used by the other distributed component system. Following our above example, Community G's

incompatible protocol will be translated into ICL in order to be compatible with the protocol used by Community F. In *Furusawa*, the broker agent and facilitator agent, being part of the same architecture, use a compatible protocol and no such translation is required.

Claims 2-10, either directly or indirectly, depend from Claim 1 and include all the limitations of Claim 1. Therefore, Claims 2-10 are allowable for at least the reasons provided herein with respect to Claim 1. Furthermore, it is respectfully submitted that Claims 2-10 recite additional features that independently render Claims 2-10 patentable over *Furusawa* and *Martin*, either taken alone or in combination.

CLAIMS 39, 14-21 and 40, 25-28, 41

Independent Claims 39 and 40 contains limitations similar to those of Claim 1.

Claim 39, as amended, is reproduced in part below:

"a) receiving by a bridge agent a description of functional capabilities of components of the other distributed component system from a **component registry**;
b) translating the functional capabilities of components received in step (a) from the protocol of the other distributed computing system into the ICL, to create a translated description;
c) adding to a **facilitator registry** of the community of distributed agents the translated description, **wherein the facilitator registry is distinct from the component registry**;"

Claim 40 as amended is reproduced in part below:

a plurality of electronic agents capable of communicating in the ICL, at least one of the agents being a bridge agent capable of translating between the ICL and the protocol understood by the other distributed component system, and further capable of translating a description of functional capabilities of components of the other distributed component system registered in a **component registry**; and

a facilitator capable of receiving from the bridge agent, in the ICL format, the translated description of functional capabilities of the components of the other distributed component system and registering the translated description of the functional capabilities in a **facilitator registry**, the facilitator further capable

of receiving a service request in the ICL and in response to the service request, determining a sub-goal request necessary to accomplish the service request, and delegating the sub-goal request, in the ICL, to the bridge agent based upon a match between the sub-goal request and the functional capabilities registered in the facilitator registry, wherein the bridge agent will translate the ICL request into the protocol of the other distributed component system to invoke at least one of the components of the other distributed component system and **wherein the component registry is distinct from the facilitator registry.**

Therefore, Claims 39 and 40 are allowable for at least the reasons provided herein with respect to Claim 1. Claims 14-21, either directly or indirectly, depend from Claim 39 and include all the limitations of Claim 39, and therefore are allowable for at least the reasons provided herein with respect to Claim 39. Furthermore, it is respectfully submitted that Claims 14-21 recite additional features that independently render Claims 14-21, and 23 patentable over *Furusawa* and *Martin*, either taken alone or in combination.

Claim 25-28, and 41, either directly or indirectly, depend from Claim 40 and include all the limitations of Claim 40, and therefore are allowable for at least the reasons provided herein with respect to Claim 40.

Furthermore, it is respectfully submitted that Claims 25-28, and 41 recite additional features that independently render Claims 25-28, and 41 patentable over *Furusawa* and *Martin*, either taken alone or in combination.

CONCLUSION

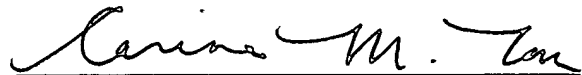
For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is encouraged to call the undersigned at (650) 838-4311.

The Commissioner is authorized to charge any fees due to Applicants' Deposit Account No. 50-2207.

Respectfully submitted,
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